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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/831,585	07/27/2001	Hans Biermaier	BHTH-5440	7039
7590	12/30/2005		EXAMINER	
Senniger Powers Leavitt & Roedel 16th Floor One Metropolitan Square St Louis, MO 63102			CHORBaji, MONZER R	
			ART UNIT	PAPER NUMBER
			1744	

DATE MAILED: 12/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	09/831,585	BIERMAIER, HANS
	<b>Examiner</b>	<b>Art Unit</b>
	MONZER R. CHORBAJI	1744

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 19 October 2005.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 11 and 13-30 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 11 and 13-30 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 27 July 2001 is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |                                                                                                                        |                                                                             |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                            | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | Paper No(s)/Mail Date. _____                                                |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|                                                                                                                        | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

**This non-final action is in response to the Appeal Brief received on 10/19/2005**

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

2. The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 22 and 30 are rejected under 35 U.S.C. 102(e) as being anticipated by Laing et al (U.S.P.N. 6,059,965).

With respect to claim 22, the Laing reference discloses thermal sterilizer that includes the following: a counterflow heat exchanger (col.1, lines 54-55) with a conduit (figure 1:15) having a heating section (figure 1:13) in fluid connection with a cooling section (figure 1:14), a heating source (figure 1:11), the heating section and the cooling section being spirally arranged around the heating source (figure 1:11, 13 and 14) and the conduit being constructed of flexible material (col.1, lines 58-59).

With respect to claim 30, the Laing reference teaches that the conduit is made of a plastic material (col.1, lines 58-59).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 11, 13-14, 20-21, 23 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Laing et al (U.S.P.N. 6,059,965) in view of Gunn (U.S.P.N. 6,402,897).

With respect to claim 11, the Laing reference discloses thermal sterilizer that includes the following: a counterflow heat exchanger (col.1, lines 54-55) with a conduit (figure 1:15) having a heating section (figure 1:13) in fluid connection with a cooling section (figure 1:14), a heating source (figure 1:11), the heating section and the cooling section being spirally arranged around the heating source (figure 1:11, 13 and 14), the

heating source being generally located in the center of the spiral (figure 1:11), the conduit being constructed of flexible material (col.1, lines 58-59) and the individual windings of conduit lying one on the other and contacting each other (figure 1:14 and 13). The Laing reference fails to teach including a check valve in the device; however, the Gunn reference, which is in the art of water treatment, teaches that designing spiral heat exchangers (122) and using check valves (29) for allowing water to flow from the heating section (5) to the cooling section (13) are conventional. As a result, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of the Laing reference by including a check valve as taught by the Gunn reference in order to control the flow out of the heating section and to also prevent backflow of the heated water (col.6, lines 40-43).

With respect to claims 13-14 and 23, the Laing reference fails to teach placing check valve on the heating section and the check valve is placed at the inlet end of the heating section; however, the Gunn reference teaches Laing placing check valve (figure 1:29) on the heating section and the check valve is placed at the inlet end of the heating section (figure 2:112 and col.9, lines 16-19). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of the Laing reference by including a check valve as taught by the Gunn reference in order to control the flow out of the heating section and to also prevent backflow of the heated water (col.6, lines 40-43).

With respect to claims 20 and 29, the Laing reference fails to explicitly teach constructing the conduits of the heat exchanger by using metallic material, however, the

Gunn reference teaches that heat exchangers are built from thin sheets of metal (figure 7:242 and col.15, lines 35-38). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the heat exchanger of the Laing reference by building it with thin sheets of metal as taught by the Gunn reference since thin metallic sheets easily allow heat to transfer within them (col.15, lines 50-53).

With respect to claim 21, the Laing reference teaches that the conduit is made of a plastic material (col.1, lines 58-59).

7. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Laing et al (U.S.P.N. 6,059,965) as applied to claim 22 and further in view of Hakim-Elahi (U.S.P.N. 5,251,689).

With respect to claim 24, the Laing reference fails to teach the concept of using elastic materials in building heat exchangers; however, the Hakim-Elahi reference teaches the use of elastic materials in the art of designing heat exchangers (col.1, lines 60-68). As a result, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the heat exchanger of the Laing reference by including elastic material as taught by the Hakim-Elahi reference in order to design a flexible heat exchanger (abstract, lines 5-6) that can be easily coiled.

8. Claims 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Laing et al (U.S.P.N. 6,059,965) as applied to claim 22 and further in view of Suchomel et al (U.S.P.N. 5,687,678).

With respect to claims 26-28, the Laing reference fails to teach the following: two individual conduits arranged coaxially one inside the other, individual windings lie in the same plane and individual windings arranged in a spherical form. The Suchomel reference, which is in the art of heating water by using spiral heat exchanger, teaches individual conduits arranged coaxially one inside the other (figure 3, 22, inner and outer tubings) and individual windings lie in the same plane (figure 3, two bottom tubings, 22, lie in the same plane). Further, the individual windings of the Suchomel reference are arranged in a cylindrical shape (figure 3, 22); however, choosing the shape of the heat exchanger coils is a matter of design choice that is within the scope of the artisan. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify shape of the spiral conduits of the heat exchanger of the Laing reference to cylindrical shape since such a substitution is a matter of design choice as evidenced by the Suchomel reference.

**9.** Claims 15-16 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Laing et al (U.S.P.N. 6,059,965) in view of Gunn (U.S.P.N. 6,402,897) as applied to claim 11 and further in view of Hakim-Elahi (U.S.P.N. 5,251,689).

With respect to claims 15-16 and 25, both the Laing reference and the Gunn reference fail to teach the concept of using elastic materials in building heat exchangers; however, the Hakim-Elahi reference teaches the use of elastic materials in the art of designing heat exchangers (col.1, lines 60-68). As a result, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the heat exchanger of the Laing reference by including elastic material as taught

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by the Hakim-Elahi reference in order to design a flexible heat exchanger (abstract, lines 5-6) that can be easily coiled.

**10.** Claims 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Laing et al (U.S.P.N. 6,059,965) in view of Gunn (U.S.P.N. 6,402,897) as applied to claim 11 and further in view of Suchomel et al (U.S.P.N. 5,687,678).

With respect to claims 17-19, both the Laing reference and the Gunn reference fail to teach the following: two individual conduits arranged one inside the other, individual windings lie in the same plane and individual windings arranged in a spherical form. The Suchomel reference, which is in the art of heating water by using spiral heat exchanger, teaches individual conduits arranged one inside the other (figure 3, 22, inner and outer tubings) and individual windings lie in the same plane (figure 3, two bottom tubings, 22, lie in the same plane). Further, the individual windings of the Suchomel reference are arranged in a cylindrical shape (figure 3, 22); however, choosing the shape of the heat exchanger coils is a matter of design choice that is within the scope of the artisan. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify shape of the spiral conduits of the heat exchanger of the Laing reference to cylindrical shape since such a substitution is a matter of design choice as evidenced by the Suchomel reference.

#### ***Remarks***

**11.** The final action dated on 08/05/2005 has been withdrawn.

#### ***Response to Arguments***

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12. Applicant's arguments with respect to claims 11 and 13-30 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MONZER R. CHORBAJI whose telephone number is (571) 272-1271. The examiner can normally be reached on M-F 6:30-3:00.

14. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, RICHARD D. CRISPINO can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

15. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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